BTCA Area H – Snow Storage Areas.

This ASCA consists of of 8 areas where snow removed from the roads will be stored while it melts. The areas are shown on Plates 7-1 and a description of the roads treated by the areas is described below.

Area 1. This area stores snow from the primary haul road.
Area 2. This area stores snow from the #3 mine access road between the WHR turnoff and the bin.
Area 3. This area stores snow from the #3 mine access road between the bin and the switchback above the bin.
Area 4. This area stores snow from the #3 mine access road starting at the switchback above the bin and going up to halfway between the switchback above the bin and the WHR TS turnoff.
Area 5. This area stores snow from #3 mine access road starting halfway between the switchback above the bin and the WHR Tank Seam turnoff and going up to the WHR Tank Seam turnoff.
Area 6. This area stores snow from the #3 Mine pad and the road between the #3 mine pad and the WHR tank seam turnoff.
Area 7. This area stores snow from the road from the WHR Tanks Seam turnoff to the last switchback below the #4 pad.
Area 8. This area stores snow from the #4 mine pad the the access road between the last switchback and the # 4 pad.

Run-off from these areas will only be treated while snow is stored there. The treatments for each of the areas is described below.

Area 1 will drain into Sediment Pond B.
Area 2 will be drain into Catch Basin 1.
Area 3 will be treated by either silt fences or straw bails placed in ditch D-25U.
Area 4 will be treated by a silt fence placed at the outlet of ditch D-30U
Area 5 will be treated by a silt fence placed at the outlet of ditch D-34U
Area 6 will drain into Sediment Pond D.
Area 7 treated by a silt fence placed at the outlet of ditch D-37U
Area 8 will drain into Catch Basin 3.

Snow is mostly air so it can be compressed up to 90% once it falls. The amount of compression snow undergoes during plowing is almost impossible to calculate until after the snow has fallen because it is dependent upon temperature, aging of snow, humidity, amount of conditioning, moisture content, pressure applied to it, and the amount of traffic that has already driven on the snow. Despite this fact we have done our best to guess the conditions of the snow that we will receive. For our calculations we used the average snow pack of 30 inches as described in Appendix 7L Gentry Mountain CHIA. We assumed the plowing process only carried 75% of the snow to the storage area. 10% would remain behind either side cast against the berm and the mountain side or compacted as a layer of ice above the road surface, and 15% would melt due to salt treatment and heat from the sun. We then assumed 80% compaction during the plowing process and the the piles we be between 8 and 10 feet high with a 45° slope. We did not account for any melting of the pile between snow storms. A table detailing the results is shown below.

Snow Area	*Treated Area (ft^2)*	*Snow Volume (ft^3)*	*Storage Area Size*			*Storage volume(ft^3)*	*Remaining Volume(ft^3)*
			Length (ft)	*Width (ft)*	*Hight (ft)*		
1	30,330	11,374	145	20	8	18,560	7,186
2	37,026	13,885	240	22	8	34,560	20.675
3a	16,110	6,041	10	30	8	8,480	2,438
3b			50	20	8		
4	10,944	4,104	30	40	10	10,500	6,396
5	10,620	3,983	15	45	10	6,000	2,018
6	29,413	11,030	40	40	10	14,000	2,970
7	23,220	8,708	90	20	10	13,500	4,793
8	7,707	2,890	20	20	10	3,000	110

Because of the many unknowns described above if is possible that our storage capacity might be exceeded. In the event that any one of the areas reaches 90% of its design capacity C. W. Mining will transport the snow to the entrance of Sediment Pond A, B, or C based on the available capacity of the ponds.

FlowMaster Worksheet for Trapezoidal Channel

Project Description		Project Description	
Worksheet	Catch Basin 1 Spillway	Worksheet	Catch Basin 2 Spillway
Flow element	Trapezoidal Channel	Flow element	Trapezoidal Channel
Method	Manning's Formula	Method	Manning's Formula
Solve For	Discharge	Solve For	Discharge

Input Data		Input Data	
Manning's Coefficient	0.035	Manning's Coefficient	0.030
Slope	0.080 ft/ft	Slope	0.080 ft/ft
Depth	1.00 ft	Depth	0.50 ft
Left Side Slope	1.00 V:H	Left Side Slope	1.00 V:H
Right Side Slope	1.00 V:H	Right Side Slope	1.00 V:H
Bottom Width	0.00 ft	Bottom Width	0.00 ft

Results		Results	
Discharge	6.00 cfs	Discharge	1.10 cfs
Flow Area	1.0 ft^2	Flow Area	0.2 ft^2
Wetted Perimeter	2.83 ft	Wetted Perimeter	1.41 ft
Top Width	2.00 ft	Top Width	1.00 ft
Critical Depth	1.18 ft	Critical Depth	0.60 ft
Critical Slope	0.033831 ft/ft	Critical Slope	0.031155 ft/ft
Velocity	6.00 ft/s	Velocity	4.41 ft/s
Velocity Head	0.56 ft	Velocity Head	0.30 ft
Specific Energy	1.56 ft	Specific Energy	0.80 ft
Froude Number	1.50	Froude Number	1.56
Flow Type	Supercritical	Flow Type	Supercritical

Catch Basin 1 Spillway:

Q_{cap} - 6.00 cfs > Q_{max} - 1.24
(See Table 7K-2)

For V = 6.00 ft/s:
Use riprap D_{50} = 6"
(See page 7G-49)

Spillway will pass the peak flow.

Catch Basin 2 Spillway:

Q_{cap} - 1.10 cfs > Q_{max} - 0.16
(See Table 7K-2)

For V = 4.41 ft/s:
No riprap required
Use 2" riprap for non-erodible material

Spillway will pass the peak flow.